REMARKS

The present amendment is intended to be fully responsive to the Final Office Action having a mailing date of July 14, 2009, wherein claims 4, 8 and 9 have been rejected and are currently pending and claims 3, 5-7 and 10 have been withdrawn from consideration as being directed to a non-elected species. By this amendment, a matter of form in the drawing has been corrected, Claims 8 and 10 have been cancelled, Claims 3-7 and 9 have been amended and Claims 11-23 have been added. Claims 1 and 2 were canceled by a previous amendment. Accordingly, by this Amendment, Claims 3-7, 9 and 11-23 are pending. Since Claim 8 and 10 have been cancelled, the rejections and objections to claim 8 are not discussed in this paper.

No new matter has been added by this amendment.

Applicant respectfully requests reconsideration of the presently pending claims in light of the preceding amendments and the following arguments. In view of these arguments, all claims are believed to be in condition for allowance over the prior art of record. Therefore, this response is believed to be a complete response to the Office Action. However, Applicant believes that there are also reasons other than those set forth below why the pending claims are patentable. Applicant therefore reserves the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers.

Objections to the Drawing

The specification stands objected to because of the location of the label FIG. 9. Applicant is providing proposed replacement sheet of drawing meeting this requirement. Entry of this amendment is therefore respectfully requested.

The Examiner has also required the addition of lubricant to the drawing. Applicant respectfully requests reconsideration of this requirement. The lubricant's use, location and functionality are described throughout the specification and therefore would be well understood by one of ordinary skill in the art when reviewing the application. For example, in paragraph [0028], the specification states, "The truncated flat surface 14 is provided so that there is a space or void 25 (see FIG. 6) formed above the ball 3 when in the housing 4. The space 25 is intended to contain lubricant, namely, a thickened oil or grease which is not shown in this Figure, but which can be any common lubricant known in the art. Filling the void 25 above the truncated surface 14 allows for pressure to be applied to the ball 3, while in the housing 4, and is employed to help seat the ball in the seat 18 (see FIG. 4) provided at the lower end of the housing 4. The pressure created by lubricants inserted into the void 25 is also a means to help adjust the ball 3 in the housing 4 to accommodate for any wear on the ball 3." Furthermore, as described below in response to objections to the claims, the lubricant is not a component of the claimed invention but is merely a part of the environment in which the invention is used. Withdrawal of this requirement is therefore respectfully requested.

The Examiner had several objections to the drawing in a Non-Final Office Action dated September 3, 2009 in a continuation application Serial No. 12/316,160 based on the present application and filed December 10, 2008. Applicant's Attorney has entered all of the same amendments made in that continuation application in response to that Non-Final Office Action in the replacement sheets filed herewith.

In particular, in Figure 1 of the Replacement Sheets, the arrow previously associated with reference numeral 11 has been replaced with 27 and a new line has been added with reference numeral 11. The legend for Figure 9 has been moved to be more clearly associated with the entire figure. Also in Figure 9, reference numeral 11 has been added. The two vertical lines at the flange 10 in Figures 1, 3, and 9 were extended all the way towards the top to depict the edge of the curved corners as seen in Figure 4. The curvature near the top is not very noticeable in Figures 1 and 3 due to the scale of the drawing. Figure 9a has also been added to show a ball joint assembly 27a having

a slightly longer shaft 2a. Amendments have been made to the specification to agree with the addition of Figure 9a and reference numerals 2a and 27a.

No new matter has been added by this amendment. In particular, as filed, the parent application specification explicitly stated on page 5, starting on line 12, "It is contemplated within the scope of this invention to provide ball joints wherein the shafts 2 are provided in various lengths."

For at least the above reasons, entry of the Replacement Sheets of drawing and the amendments to the specification as well as the withdrawal of the objection to the drawing is respectfully requested.

Withdrawal of Claims due to Restriction

In the Final Office Action, claims 3, 5-7 and 10 were withdrawn from consideration as being directed to a non-elected species. By the above amendment, claims 3 and 5-7 have been amended to depend upon claim 9 and therefore to be directed to the same species as claim 9 and new Claims 11-16 depending from Claim 9 have been added. Claims 8 and 10 have been canceled. New Claims 17-23 directed to the elected species have also been added by this amendment. The Examiner is therefore respectfully requested to reverse the withdrawal of claims 5-7 and to examine claims 5-7 along with the non-withdrawn claims 4 and 9 and new claims 11-23.

Objection to the Claim 9

The Examiner has objected to Claim 9 for certain matters of form. By the above amendments, applicant has entered each of the changes specifically requested by the Examiner. Withdrawal of this objection is therefore respectfully requested.

Rejections under U.S.C. § 112

The Examiner has objected to Claims 4 and 9 under U.S.C. § 112 as being indefinite. In particular, the Examiner states that it is unclear in claim 9 if the retaining member is a component of the ball joint. By the above amendment, the retaining member is now more clearly claimed as a component of the ball joint. Withdrawal of this rejection is therefore respectfully requested.

The Examiner further states that it is unclear in claim 9 if the lubricant is a component of the ball joint. By the above amendment, lubricant is now more clearly recited as not being a component of the claimed structure of the invention, but, instead, something added to the claimed ball joint when it is used in a vehicle. Lubricant therefore is more accurately part of the environment in which it is used, as are, for example, other components of suspension system in which the ball joint is installed. Withdrawal of this rejection is therefore respectfully requested.

The Examiner further states that it is unclear in claim 9 how pressure of the lubricant is maintained. Applicant respectively traverses this rejection. As described above, as amended, lubricant is not a component of the invention claimed in claims 4 and 9. Furthermore, the applicant is not claiming a new way of pressurizing lubricant, just a device which uses pressurized lubricant. Therefore, the applicant is not required to teach how to pressurize lubricant or how provide it to the lubricating port. As to the channels 26, it is inherent in the disclosure, as would be apparent to one skilled in the art upon reading the disclosure, that any cavity, channel, void, or passageway to which lubricant can flow must be taken into account in maintaining pressure. Withdrawal of this rejection is therefore respectfully requested.

For at least the above reasons, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

Over Nienke, Scheublein '377, Maughan '853 and Howard

Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nienke (U.S. 2,900,196) in view of Scheublein, Jr. (U.S. 3,103,377), Maughan (U.S. 5,564,853) and Howard (U.S. 5,816,731). Applicants respectfully traverse the rejection.

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. It is respectfully submitted that the above listed references fail to teach or suggest all of the claim limitations in Claim 9, as amended.

Independent claim 9, as currently amended, claims:

> 9. A metal ball joint for use with a pressurized lubricant, the ball joint comprising in combination:
>
> (i) an elongated shaft having an upper end and a lower end, said elongated shaft being threaded on the lower end;
>
> (ii) a ball rigidly fixed and surmounted on the upper end of the elongated shaft, said ball, at the highest point opposite the upper end of the elongated shaft, having a truncated flat face;
>
> (iii) a housing having an outside surface, an upper flange with a threaded opening, a middle portion, and a lower end, said housing further having a curved seat formed at the lower end of the housing to seat and engage the portion of the surface of the ball adjacent the elongated shaft and an opening formed in the seat for passage therethrough of the elongated shaft but not permitting passage therethrough of the ball such as to permit pivotal movement of the elongated shaft relative to the

housing, said middle portion of the housing having an internal thread and said middle portion having a means for attaching the housing to a socket;

(iv) a retaining member having an upper surface and a lower end, said retaining member having a curved seat formed at the lower end thereof to seat and engage the a portion of the surface of the ball adjacent the truncated flat surface thereof and a lubricating port located in the upper surface thereof, the lubricating port being in communication with a duct, said duct providing a passageway from the lubricating port to the truncated flat face of the ball, capable of permitting the admission of a pressurized lubricant, such that the pressurized lubricant exerts pressure against the retaining member and the truncated flat face of the ball to maintain pressure on the ball to maintain the ball against the seat of the housing. said retaining member having an external thread on its lower end, the external thread being engageable with the internal thread of the housing to trap the ball within the housing and the retaining member; the retaining member being capable of maintaining a seal between the ball and the housing via the pressure of the lubricant on the truncated flat face of the ball; and

(v) a set screw removably threaded into the threaded opening in the upper flange of the housing into engagement with the retaining member such that the retaining member can be selectively removed from the housing by removal of the set screw.

Therefore, to obviate claim 9, as amended, the prior art must at least teach or suggest a ball joint having a housing threadably engaging a retainer where there is a curved seat formed at the lower end of the housing and a curved seat formed at the lower end of the retainer, each to seat and engage a portion of the surface of the ball. It is respectfully submitted that none of the references cited, either alone or in any permissible combination, teach or suggest this structure.

Nienke, the primary reference relied on for this rejection, teaches a multiple piece assembly where a retainer 24 threadably engages a housing 23, but neither includes a curved seat for engagement with a surface of the ball. Instead, a "socket member" is provided, comprised of two halves, the upper half 21 and the lower half 22. Lugs 21c and 22d are provided to prevent the upper and lower halves from turning relative to each other. Nienke therefore teaches that, while the retainer 24 and housing 23 are capable of turning relative to each other, the seats for the ball are not. (*Nienke, col. 2, beginning on line 60*) Therefore, Nienke not only teaches a configuration where the seats are not formed in the retained and the housing, it explicitly teaches away from such a configuration.

Furthermore, none of the secondary references relied upon for this rejection, Scheublein '377, Maughan '853 and/or Howard, provide any further teaching or suggestion that seats for engaging the ball should be incorporated into the a retaining member and a housing that are threadably engaged with each other.

Scheublein '377 teaches a retainer 66 threadably engaging a housing 14 and trapping a hemispherical ball between the retainer and a flat bearing 19, 42 or 62. In particular, in Scheublein '377, only one member, the retainer 66, engages the curved surface of the hemispherical ball. A bearing 19, 42 or 62, movably held by a housing 14 engages a generally flat surface of the hemispherical ball. (*See Scheublein Fig. 1, 3 and 5*). Thus, this reference fails to teach two seats for engaging the ball, let alone seats formed in a retainer and a housing threadably interengaged, as claimed in Claim 9, as amended.

Maughan '853 teaches a ball joint configuration wherein the ball is trapped in a housing by permanently deforming the housing at 70 and there is neither a retainer member nor a threaded engagement. (*See Maughan Figs. 2 and 3*) Thus, this reference fails to teach a seat formed in a retainer for engaging the ball, let alone seats formed in a retainer and a housing threadably interengaged, as claimed in Claim 9.

Howard similarly teaches trapping a ball between seats formed in bearing members 9 and 10 that is secured in a housing 11 by a cap 12. (*See Fig. 1 and col. 1 line 41 et. seq.*) Thus, this reference fails to teach seats formed, respectively, in a retainer and in a housing, which are threadably interengaged, as claimed in Claim 9.

Thus, none of the references, taken either alone or in any combination, teach or suggest this feature claimed in claim 9, as amended. For at least this reason, this rejection should be withdrawn.

Furthermore, to obviate claim 9, as amended, the prior art must at least teach or suggest the retaining member being capable of maintaining a seal between the ball and the housing via the pressure of the lubricant on the truncated flat face of the ball. It is respectfully submitted that none of the references cited, either alone or in any permissible combination, teach or suggest this structure.

The Examiner has acknowledged that this feature is nowhere taught or suggested by Nienke, Scheublein, Jr. '377, or Maughan '853 and is relying solely on Howard. In particular, the Examiner states:

> "Howard teaches that a lubricant exerts pressure against a retaining member and the retaining member maintains a seal between the ball and the housing via pressure of the lubricant on the truncated flat face of 18e of the ball 18d as part of a high pressure lubricant to maintain the ball lubricated. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to pressurize the lubricant in Nienke to lubricate the ball joint with high pressure lubricant." [*Second paragraph on page 2 of the Final Office Action*]

Applicant respectfully disagrees. Howard does not rely on pressure of the lubricant on the truncated flat face of 18e of the ball 18d, as stated by the Examiner. Therefore, it would not

have been obvious to one of ordinary skill in the art at the time the invention was made to pressurize the lubricant in Nienke to lubricate the ball joint with high pressure lubricant.

The pressurized lubricant in Howard is used in the chamber 14 between a cap 12 and a diaphragm 23, causing the diaphragm to indirectly bias a bearing member 9 into engagement with the ball. (*See Howard, Figure 1 and col. 7, line 66 et. seq.*) Howard provides a passageway 28 from chamber 14 to the region 17 adjacent the ball, but this is to lubricate the ball and relieve the pressure in chamber 14. The flow along passageway 28 is regulated by a valve 34. (*See Howard, column 9, line 9 et. seq.*) Thus, the pressure of fluid in region 17 will be significantly less than the pressure in chamber 14 and therefore Howard fails to suggest using pressurized lubricant to lubricate the ball, as stated by the Examiner. It should be noted that Howard explicitly refers to chamber 17 as an ambient pressure lubricant chamber. (*See Howard, col. 1, line 47*) In fact, if the fluid adjacent the ball was pressurized, it would counteract the intended purpose of the pressurized fluid in the chamber 14.

Furthermore, Howard nowhere teaches or suggests using fluid in the region 17 for any purpose other than lubrication and relief of pressure in chamber 14.

Thus, Howard nowhere teaches or suggests the retaining member being capable of maintaining a seal between the ball and the housing via the pressure of the lubricant on the truncated flat face of the ball, as claimed in claim 9, as amended. Furthermore, Howard nowhere teaches or suggests pressurized lubricant exerting pressure against the retaining member and the truncated flat face of the ball to maintain pressure on the ball to maintain the ball against the seat of the housing, as also claimed in Claim 9, as amended. For at least this additional reason, this rejection should be withdrawn.

For the above reasons, it is respectfully submitted that claim 9 is allowable over these references. Dependent Claims 3–7 and 11-16, depending from allowable claim 9 and including all of the limitations of claim 9, are therefore also allowable over these references. Furthermore,

Claims 3-7 and 11-16 include additional recitations that further patentably distinguish them from these references.

For example, Claim 4, as amended, claims said housing further comprising an external thread capable of attaching the housing to a support arm of a suspension system. Claims 5-7, as amended, and new Claim 14 claim various other novel features relating to the manner in which the housing may be attached to a suspension system. New Claims 11 and 12 respectfully recite a unitary housing and a unitary retainer. New Claims 15 and 16 claim novel geometric features of the housing and retaining member. None of these features are taught or suggested by the references. For at least this additional reason, dependent Claims 3-7 and 11-16 are allowable.

For these reasons, withdrawal of the rejection under 35 U.S.C. 103(a) over Nienke in view of Scheublein '377, Maughan '853 and Howard is respectfully requested.

Rejections under 35 U.S.C. § 103

Over Scheublein '993, Maughan '853, and Howard

Claims 4, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheublein, Jr. (U.S. 2,954,993) in view of Maughan '853 and Howard. Applicants respectfully traverse the rejection.

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. It is respectfully submitted that the above listed references fail to teach or suggest all of the claim limitations in Claim 9, as amended.

To obviate claim 9, as amended, the prior art must at least teach or suggest a ball joint having a housing threadably engaging a retainer where there is a curved seat formed at the lower

end of the housing and a curved seat formed at the lower end of the retainer, each to seat and engage a portion of the surface of the ball. It is respectfully submitted that none of the references cited, either alone or in any permissible combination, teach or suggest this structure.

None of the references cited teach or suggest using pressurized lubricant in the manner claimed in Claim 9. The Examiner has acknowledged that such teachings are not found in Scheublein '993 and Maughan '853, and, as in the previously described obviousness rejection, relies on Howard for teachings relating to pressurized lubricant. For the reasons provided above in Applicant's response to the first obviousness rejection, which are repeated and incorporated herein, it is respectfully submitted that the Examiner is attributing teachings to Howard nowhere found in the reference. For at least this reason, independent Claim 9, as well as dependent Claims 3-7 and 11-16, depending from Claim 9, are allowable over these references.

Furthermore, to obviate claim 9, as amended, the prior art must at least teach or suggest a ball joint having a housing threadably engaging a retainer where there is a curved seat formed at the lower end of the housing and a curved seat formed at the lower end of the retainer, each to seat and engage a portion of the surface of the ball. It is respectfully submitted that none of the references cited in the present rejection, either alone or in any permissible combination, teach or suggest this structure.

Scheublein '993, the primary reference for this rejection, teaches a retainer 104 threadably engaging a housing 91 and trapping a hemispherical ball 100 between a bearing 103 with an arcuate seat and a flat bearing 99. (*See* Scheublein '993 *Fig. 9*) Therefore, this reference fails to teach or suggest having a seat formed in either the retainer or the housing, as claimed in claim 9, as amended.

Furthermore, for the reasons discussed previously in connection with responding to the first obviousness rejection, this feature is nowhere taught or suggested by either Maughan '853 or Howard. Thus, even when combined, in any manner with Scheublein '993, the references fail to teach or suggest the present invention as claimed in claim 9. For at least this additional reason,

Claim 9, as amended, and claims 3-7 and 11-16, depending therefrom, are unobvious over any combination of Scheublein '993, Maughan '853, and Howard. Withdrawal of this rejection under 35 U.S.C. 103(a) is respectfully requested.

Secondary Considerations of Novelty

Applicant hereby incorporates herein and renews the arguments made in prior responses in the present application.

In particular, Applicant repeats the arguments made in the paper filed June 9, 2008 wherein Applicant described in detail the advantages and commercial success of the present invention, the benefits offered by the present invention and the commercial success of products incorporating the present invention. More particularly, as was described in that paper in detail, the present invention offers a novel configuration that addresses performance issues relating to handling of a motor vehicle by providing a product that improves handling and facilitates replacement.

In the Final Office Action, the Examiner objected to these arguments as failing to comply with 37 C.F.R. § 1.111 as not clearly pointing out the patentable novelty of the claims. It is respectfully submitted that these arguments are properly included in a response and should be considered by the Examiner as secondary considerations of novelty in consideration of an obviousness type rejection as they relate directly to the actual teachings of the prior art, either alone or together, as well as the level of skill of those skilled in the art. In providing guidelines for consideration of obviousness type rejections, following the KSR decision, the Patent Office has said:

The factual inquiries enunciated by the Court are as follows:

(1) Determining the scope and content of the prior art;

(2) Ascertaining the differences between the claimed invention and the prior art; and

(3) Resolving the level of ordinary skill in the pertinent art.

Objective evidence relevant to the issue of obviousness must be evaluated by Office personnel. Such evidence, sometimes referred to as "secondary considerations," may include evidence of commercial success, long-felt but unsolved needs, failure of others, and unexpected results. The evidence may be included in the specification as filed, accompany the application on filing, or be provided in a timely manner at some other point during the prosecution. The weight to be given any objective evidence is decided on a case-by-case basis. The mere fact that an applicant has presented evidence does not mean that the evidence is dispositive of the issue of obviousness. The question of obviousness must be resolved on the basis of these factual determinations. While each case is different and must be decided on its own facts, the Graham factors, including secondary considerations when present, are the controlling inquiries in any obviousness analysis. As stated by the Supreme Court in KSR, "While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls."[*Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International Co. v. Teleflex Inc. December 30, 2008*]

In the Final Office Action, the Examiner stated that the claims do mention the advantages, such as lateral loads. It is respectfully submitted that this misses the point that the advantages of the invention are available as a result of the novel configuration and not a further limitation on the novel configuration. Applicant is not required to incorporate into claims functional language that merely describes the advantages of the present application that does not represent an actual limitation on the structure of the claimed invention or step in a claimed process in order to rely on the advantages as evidence of secondary considerations of nonobviousness.

For at least this reason, withdrawal of this objection and reconsideration of these arguments is respectfully requested.

The Examiner also asked in the Final Office Action if the present invention has proper filed inventorship in view of the mention in an article filed by Applicant that also mentions a competitive product by Federal Mogul. Applicant believes that the present application was filed with proper inventorship and that no other person, such as a Federal Mogul employee, contributed to the invention, as claimed.

New Claims 17-23

New claims 17-23 have been added by this amendment. It is respectfully submitted that these claims are also patentable over the references cited above for reasons similar to those presented above. For example, new independent Claim 17 claims a unitary housing and a unitary retaining member threadably interengaged and each having a seat engaging the ball. New independent Claim 17 also claims an external thread on the outside surface thereof for attachment to a suspension system. The remainder of the new claims are dependent upon Claim 17 and therefore include the limitations of allowable claim 11. In particular, new Claim 21 adds the use of pressurized lubricant to exert a force on the truncated face of the ball. Therefore, entry, examination and allowance of these new claims is respectfully requested.

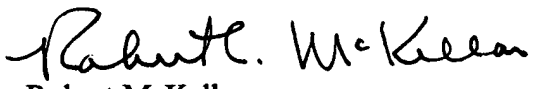
CONCLUSION

Reconsideration and allowance of the claims as now presented are respectfully requested. In view of the above amendment and remarks, Applicants believe the pending application is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. However, in the event there are any issues remaining in this case, Applicant requests an early Examiner Interview on this case to discuss such issues. Applicant's Attorney may be reached at the number below his signature to schedule an interview.

It is believed that any fees associated with the filing of this paper are identified in an accompanying transmittal. However, if any additional fees are required, they may be charged to our Deposit Account 13-2492, from which the undersigned is authorized to draw.

Dated: January 14, 2010

Respectfully submitted,



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